REMARKS

INTRODUCTION:

In accordance with the foregoing, claims 1, 5, 7, 13, 17, and 19 have been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-31, 42, and 43 are pending and under consideration. Reconsideration is requested.

ENTRY OF AMENDMENT UNDER 37 C.F.R. §1.116:

Applicants request entry of this Rule 116 Response because:

(1) the amendments of claims 1, 5, 7, 13, 17, and 19 should not entail any further search by the Examiner since no new features are being added or no new issues are being raised; and

(2) the amendments do not significantly alter the scope of the claims and place the application at least into a better form for purposes of appeal. No new features or new issues are being raised.

The Manual of Patent Examining Procedures sets forth in Section 714.12 that "any amendment that would place the case either in condition for allowance or in better form for appeal may be entered." Moreover, Section 714.13 sets forth that "the Proposed Amendment should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified." The Manual of Patent Examining Procedures further articulates that the reason for any non-entry should be explained expressly in the Advisory Action.

OBJECTION TO THE SPECIFICATION UNDER 35 U.S.C. 132:

On page 2 of the Office Action, the Examiner objects to the amendment of July 6, 2004 under 35 U.S.C. §132 as incorporating new subject matter in changing the phrase "more preferably 80 to 98%" in paragraph 0015 to "more preferably 80 to 90%." However, it is noted that the change to the specification is to correct an apparent typographical error, and is consistent with at least claims 4 and 16 of the application as filed. As noted in MPEP 608.04, "[i]n establishing a disclosure, applicant may rely not only on the specification and drawing as filed but also on the original claims if their content justifies it." It is respectfully submitted that the claims provided in the application as filed justify the change from 98 to 90, and that the Examiner reconsider and withdraw the objection to the specification.

Additionally, it is noted that at least paragraph 0016 of the foreign priority application further confirms that range should be to 90% instead of 98%, and that the recitation of 98% was due to a typographical error as would have been understood by one of ordinary skill in the art.

As set forth in the accompanying Affidavit, this change is consistent with the disclosure in Korean Patent Application No. 2000-69642. As such, consistent with the requirements of MPEP 608.01(p)(B)(2), the amendment to paragraph 0015 has been amended consistent with paragraph 0016 of Korean Patent Application No. 2000-69642, the disclosure of which is incorporated by reference in paragraph 0001 of the application as filed. As such, it is respectfully requested that the Examiner reconsider and withdraw the objection.

On pages 2-3 of the Office Action, the Examiner objects to claims 4, 16, 42, and 43 as not being in the specification. Accordingly, paragraphs 0010.1, 0010.2, 0011.1 and 0011.2 have been included in the specification in order to set forth an aspect of the invention as set forth in claims 3, 4, 15, and 16 as originally presented. As such, it is respectfully requested that the Examiner reconsider and withdraw the objection.

OBJECTION TO THE CLAIMS:

On page 3 of the Office Action, the Examiner objects to claims 3, 4, 15, and 16 under 37 CFR 1.75(c) as being in improper dependent form. Specifically, the Examiner asserts that the range of "at least 80%" as recited in claims 3 and 15 does not further limit claim 1, which recites a range of at or between 60% and 90%. It is respectfully submitted that the sub-range of claims 3 and 15 further defines the range of claim 1 by not including the range of 60% to 80%, and is therefore narrower than claim 1 consistent with 37 CFR 1.75(c). As such, it is respectfully requested that the Examiner reconsider and withdraw the objection to claims 3 and 15.

For at least similar reasons it is respectfully requested that the Examiner reconsider and withdraw the objection to claims 4 and 16.

REJECTION UNDER 35 U.S.C. §112:

In the Office Action at pages 3-4, the Examiner rejects claims 1-24 under 35 U.S.C. §112, first paragraph, as not being described in the specification since the Examiner asserts that the range of at or between 60% and 90% as recited in claims 1 and 13 is not contained in the original disclosure, as filed. This rejection is respectfully traversed and reconsideration is requested.

As an initial point of clarification, it is respectfully submitted that the recited range set forth in claims 1 and 13 is supported by claims 3, 4, 15, and 16 as filed. Since the claims are considered part of the specification as filed, it is respectfully submitted that the recited range is set forth in the original specification sufficient for the purposes of 35 U.S.C. §112, first paragraph.

In addition, in view of the enclosed Declaration supporting the amendment to the specification, it is respectfully submitted that the recited range in claims 1 and 13 is supported by paragraph 0015 as filed, as well as the Examples 1 through 3 in the specification as filed.

REJECTION UNDER 35 U.S.C. §103:

1. Rejection of claims 1-24 in view of Chu et al. and Peled et al.

In the Office Action at pages 4-8, the Examiner rejects claims 1-24 under 35 U.S.C. §103 in view of Chu et al. (U.S. Patent No. 6,030,720) and Peled et al. (U.S. Patent No. 4,410,609). The rejection is respectfully traversed and reconsideration is requested.

On page 7, the Examiner admits that Chu et al. does not suggest ranges for porosity being at or between 60% and 90%. In order to cure this deficiency, the Examiner relies upon Peled et al. as disclosing such a feature. By way of review, Peled et al. suggests a cathodic current collector having a powder of carbon bonded with an inert material (such as Teflon) and supported by an Exmet of nickel or stainless steel for support. The resulting cathodic current collector has a porosity of about 80% and is loaded with solid sulfur. (Col. 3, line 64 to col. 4, line 11 of Peled et al.) However, while Peled et al. suggests that the porosity of 80% is advantageous in the context of pores formed using a teflonated carbon, Peled et al. does not suggest that such porosity is advantageous in other contexts, in current collectors not using the teflonated carbon to form the pores, or in current collectors using a conductive expanded matrix such as that suggested in Chu et al.

On page 8 of the Office Action, the Examiner asserts that a motivation to use the porosity suggested by Peled et al. for the matrix of Chu et al. is that the porosity allows extensive electrolyte solvent communication through the cathode and increases the loading of the cathode active material. However, it is noted that the Examiner does not point to a source for the asserted motivation, and it is noted that Peled et al. does not suggest that the advantages extend to a type of matrix suggested in Chu et al. since Peled et al. suggests supporting the teflonated carbon on a metal screen, but does not suggest pores created through a matrix such as that suggested by Chu et al. or that similar advantages would exist in so doing.

As a general matter, in order to establish a prima facie obviousness rejection, the Examiner needs to provide both the existence of individual elements corresponding to the recited limitations, and a motivation to combine the individual elements in order to create the recited invention. Both the individual elements and the motivation need to be shown to have existed in the prior art. Should the Examiner fail to provide evidence that either one of the individual elements or the motivation does not exist in the prior art, then the Examiner has not

provided sufficient evidence to maintain a prima facie obviousness rejection of the claim. MPEP 2143.03. Thus, the burden is initially on the Examiner to provide evidence as to why one of ordinary skill in the art would have been motivated to combine the individual elements to create the recited invention, and to demonstrate that this evidence existed in the prior art. MPEP 2143.01. It is respectfully submitted that there is insufficient evidence of record as to why one or ordinary skill in the art would have been motivated to use the porosity suggested in Peled et al. in the context of teflonated carbon for the matrix of Chu et al. as is required to maintain a prima facie obviousness rejection of claims 1-24.

Lastly, while Chu et al. discloses the use of the conductive foam or conductive matrix as the current collector, there is no suggestion that the conductive foam or matrix includes a conductive agent. Since Peled et al. is not relied upon as disclosing and does not disclose such a feature, it is respectfully submitted that the combination does not disclose or suggest that "said porous current collector comprises a resin foam coated with a metal, where the coated resin foam is subjected to a pyrolysis process" and that "said porous current collector further comprises a conductive agent" as recited in claim 6.

For at least similar reasons, it is respectfully submitted that Chu et al. does not disclose or suggest the invention recited in claims 17 and 18.

2. Rejection of claims 25-28 in view of Barton et al. and Turi et al.

In the Office Action at pages 8-9, the Examiner rejects claims 25-28 under 35 U.S.C. §103 in view of Barton et al. (U.S. Patent No. 6,503,432) and Turi et al. (U.S. Patent No. 5,478,676). The rejection is traversed and reconsideration is respectfully requested.

On page 8 of the Office Action, the Examiner asserts that Barton et al. suggests coating a current collector with a primer layer to prevent corrosion and that the current collector being coated can be a metal mesh or a metal foam. As a point of clarification, Barton et al. suggests using a primer layer in the context of metal foil or sheet type current collectors. Further, the primer 18 suggested in Turi et al. is also used on a metal sheet or foil as disclosed in col. 3, lines 23-40. As such, it is respectfully submitted that, even assuming arguendo that the combination of Turi et al. and Barton et al. suggests coating a current collector with a primer layer including carbon black, the combination does not disclose coating a porous version of the current collector with the primer 18.

Further, it is noted that the use of the primer 18 shown in Turi et al. would appear to fill in the pores of Barton et al. and reduce the effective reaction surface for any of the positive active material in the metal mesh or the metal foam, thus reducing the effectiveness of the resulting cathode. As such, it is respectfully submitted that one of ordinary skill in the art would not

understand the suggested use of the primer as disclosed in col. 12, lines 25-30 of Barton et al. would be for the metal foam or metal mesh version of the current collector as opposed to a metal foil version.

Therefore, it is respectfully submitted that the combination of Barton et al. and Turi et al. does not disclose the features of claim 25, and that there is insufficient evidence of record as to a motivation to combine Barton et al. and Turi et al. in the recited manner as is required to reject claim 25 under 35 U.S.C. §103.

Claims 26-28 are deemed patentable due at least to their depending from claim 25.

3. Rejection of claims 25-28, 30, and 31 in view of Chu et al. and Turi et al.

In the Office Action at pages 9-11, the Examiner rejects claims 25-28, 30, and 31 under 35 U.S.C. §103 in view of Chu et al. and Turi et al. The rejection is traversed and reconsideration is respectfully requested.

On page 10 of the Office Action, the Examiner relies upon Turi et al. as disclosing a primer 18 including carbon black to be coated on a matrix as disclosed in Chu et al. However, it is respectfully submitted that, as similarly noted above in relation to the rejection of claim 25 in view of Barton et al. and Turi et al., Turi et al. suggests using the primer 18 in the context of a metal sheet or foil, and does not suggest that the primer 18 can or should be used in the context of a matrix such as that suggested in Chu et al. It is further respectfully submitted that the use of the primer 18 would reduce the open nature of the matrix and the effective reaction surface thereon. Therefore, it is respectfully submitted that the combination does not disclose the features of claim 25, and that there is insufficient evidence of record as to a motivation to combine Chu et al. and Turi et al. in the recited manner as is required to reject claim 25 under 35 U.S.C. §103.

Claims 26-28, 30, and 31 are deemed patentable due at least to their depending from claim 25.

4. Rejection of claims 29, 42, and 43 in view of Chu et al., Turi et al., and Peled et al.

In the Office Action at page 11, the Examiner rejects claims 29, 42, and 43 under 35 U.S.C. §103 in view of Chu et al., Turi et al., and Peled et al. The rejection is traversed and reconsideration is respectfully requested.

The Examiner relies upon Peled et al. as disclosing the ranges recited in claims 29, 42, and 43, but not as otherwise curing the above noted defect of the combination of Chu et al. and Turi et al. as applied to claim 25, from which claims 29, 42, and 43 depend. As such, it is respectfully submitted that claims 29, 42, and 43 are patentable over the combination due at least to the patentability of claim 25.

Lastly, as similarly set forth above in relation to the rejection of claims 1-24 in view of Chu et al. and Peled et al., it is respectfully submitted that there is insufficient evidence of a motivation to use the porosity range set forth in Peled et al. for the matrix described in the combination of Chu et al. and Turi et al. as is required to maintain a rejection of claims 29, 42, and 43 in view of the combination of Chu et al., Turi et al. and Peled et al., it is respectfully submitted that there is insufficient evidence of record as to why one of ordinary skill in the art would have been motivated to use the porosity ranges.

5. Rejection of claims 29, 42, and 43 in view of Barton et al., Turi et al., and Peled et al.

In the Office Action at page 12, the Examiner rejects claims 29, 42, and 43 under 35 U.S.C. §103 in view of Barton et al., Turi et al., and Peled et al. The rejection is traversed and reconsideration is respectfully requested.

The Examiner relies upon Peled et al. as disclosing the ranges recited in claims 29, 42, and 43, but not as otherwise curing the above noted defect of the combination of Barton et al. and Turi et al. as applied to claim 25, from which claims 29, 42, and 43 depend. As such, it is respectfully submitted that claims 29, 42, and 43 are patentable over the combination due at least to the patentability of claim 25.

Lastly, as similarly set forth above in relation to the rejection of claims 1-24 in view of Chu et al. and Peled et al. and the rejection of claims 29, 42, and 43 in view of Chu et al., Turi et al., and Peled et al., it is respectfully submitted that there is insufficient evidence of a motivation to use the porosity range set forth in Peled et al. for the matrix described in the combination of Barton et al. and Turi et al. as is required to maintain a rejection of claims 29, 42, and 43 in view of the combination of Barton et al., Turi et al. and Peled et al., it is respectfully submitted that there is insufficient evidence of record as to why one of ordinary skill in the art would have been motivated to use the porosity ranges.

CONCLUSION:

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited. At a minimum, this Amendment should be entered at least for purposes of Appeal as it either clarifies and/or narrows the issues for consideration by the Board.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited and possibly concluded by the Examiner contacting the undersigned attorney for a telephone interview to discuss any such remaining issues.

If there are any additional fees associated with the filing of this Response, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

STEIN, MCEWEN & BUI LLP

By: _____
James G. McEwen
Registration No. 41,983

1400 Eye Street, NW
Suite 300
Washington, D.C. 20005
Telephone: (202) 216-9505
Facsimile: (202) 216-9510

Date: Dec. 21, 2004